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IS 10013-2 (1981): water soluble type wood preservatives,
Part 2: Copper-chrome-arsenic (CCA) wood preservative [CED
9: Timber and Timber Stores]



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“Knowledge is such a treasure which cannot be stolen”

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Indian Standard

**SPECIFICATION FOR
WATER SOLUBLE TYPE WOOD
PRESERVATIVES**

**PART II COPPER-CHROME-ARSENIC (CCA)
WOOD PRESERVATIVE**

(Incorporating Amendment No 1)

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BUREAU OF INDIAN STANDARDS
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NEW DELHI 110002

Price Group 2

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Indian Standard
**SPECIFICATION FOR
WATER SOLUBLE TYPE WOOD
PRESERVATIVES**

**PART II COPPER-CHROME-ARSENIC (CCA)
WOOD PRESERVATIVE**

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Indian Standard

SPECIFICATION FOR
WATER SOLUBLE TYPE WOOD
PRESERVATIVES

PART II COPPER-CHROME-ARSENIC (CCA)
WOOD PRESERVATIVE

0. FOREWORD

0.1 This Indian Standard (Part II) was adopted by the Indian Standards Institution on 30 November 1981, after the draft finalized by the Timber Sectional Committee had been approved by the Civil Engineering Division Council.

0.2 With the rapid industrial development of the country, coupled with increased construction activity alround, the demand for timber for construction purposes has greatly increased. In view of the limited availability of naturally durable species, such as teak (*Tectona grandis*) and sal (*Shorea robusta*), it is imperative that supplies of durable timbers are augmented by selected timbers of lesser durability which, when suitably treated, would give increased life under service conditions. Preservative treatment of timber, therefore, forms a very important part of the national effort to conserve the material resources of the country, and to achieve their most economic utilization.

0.3 IS : 401-1982* covers types of preservative, methods of treatment, and the type and choice of treatment for different species of timber for a number of uses. The standard also lists various oil type, organic solvent type, and water-soluble (leachable) and water-soluble (fixed) type preservatives. The efficiency of preservative treatment depends, besides the proper choice of preservative and the treatment process, on the quality of the preservative to ensure required absorption and penetration of the preservation. This standard has been formulated to lay down requirements of copper-chrome-arsenic (CCA) — a water-soluble (fixed) type preservative.

0.4 In the formulation of this standard due weightage has been given to international co-ordination among the standards and practices prevailing in different countries in addition to relating it to the practices in the field in this country.

0.5 This edition 1.1 incorporates Amendment No. 1 (January 1999). Side bar indicates modification of the text as the result of incorporation of the amendment.

*Code of practice for preservation of timber (*third revision*)

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0.6 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard

1. SCOPE

1.1 This standard (Part II) covers the requirements for copper-chrome-arsenic a water-soluble (fixed) type wood preservative specified for treatment of timber and other lignocellulosic materials as given in IS : 401-1982†.

1.2 This standard covers the composition of the preservative, quality of chemicals forming the composition, and sampling procedure for analysis.

1.3 The analysis procedure for different ingredients have been covered in IS : 2753 (Part I)-1964‡

2. COMPOSITION AND PROPERTIES OF PRESERVATIVE

2.1 Copper-chrome-arsenic preservative formulation shall consist of the following active ingredients in nominal proportions by weight as shown below

| | | |
|-------------------------|---------------------------|--------|
| Arsenic pentoxide | $As_2O_5 \cdot 2H_2O$ | 12.5 |
| Copper sulphate | $CuSO_4 \cdot 5H_2O$ | 37.5 |
| Sodium dichromate or | $Na_2Cr_2O_7 \cdot 2H_2O$ | } 50.0 |
| Potassium dichromate | $K_2Cr_2O_7$ | |

2.1.1 The percentage of any of the ingredients shall be not less than that shown below

| | | |
|-------------------------|---------------------------|--------|
| Arsenic pentoxide | $As_2O_5 \cdot 2H_2O$ | 10.0 |
| Copper sulphate | $CuSO_4 \cdot 5H_2O$ | 35.0 |
| Sodium dichromate or | $Na_2Cr_2O_7 \cdot 2H_2O$ | } 47.5 |
| Potassium dichromate | $K_2Cr_2O_7$ | |

*Rules for rounding off numerical values (revised)

†Code of practice for preservation of timber (third revision)

‡Methods for estimation of preservatives in treated timber and in treating solutions
Part I Determination of copper, arsenic, chromium, zinc, boron, creosote and fuel oil

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2.2 The preservative may be in a dry solid form, semi-liquid paste or solution

2.3 In case of dry solid, the preservative shall contain at least 95 percent of the active ingredients mentioned under 2.1

2.3.1 In all cases the percentage of active ingredients, total active compounds and moisture shall be labelled on the container as well as descriptive literature of the product

2.4 Each of the chemicals used for such formulation shall be not less than of 95 percent purity. In case arsenic pentoxide is not available in solid or semi liquid paste but as solution, its strength shall not be less than 72 percent. Additional quantity may be added to make up the active ingredients to achieve the desired limits mentioned in 2.1 and 2.1.1 and minimum 95 percent total active ingredients in the dry formulation as per 2.3

2.5 Preservative formulation shall produce a clear solution when dissolved in water and shall not contain any turbid or suspended or insoluble matter

3. SAMPLING

3.1 Samples shall be taken from requisite number of drums out of the supply made at one particular time according to sampling procedure laid down in IS 4905 1968*

3.2 In case of solution or paste, the same shall be thoroughly mixed with a rod and at least 1 kg sample shall be taken for chemical analysis from each drum

3.3 In case of dry powder form, a true representative sample of preservative not less than 10 percent of the contents shall be taken for analysis.

3.4 At least 1 kg of the preservative shall be dissolved to obtain 15 percent solution of the preservative

3.5 A small amount of the 15 percent solution may be drawn and diluted exactly to 5 percent for chemical analysis.

4. TESTING

4.1 The chemical analysis of the solution with respect to its various ingredients shall be carried out according to 3.4 of IS 2753 (Part I) 1964†. The proportion of all chemicals shall comply with 2.1 and 2.1.1

*Method for random sampling

†Methods for estimation of preservatives in treated timber and in treating solutions
Part I Determination of copper, arsenic, chromium, zinc, boron, creosote and fuel oil

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5. MARKING

5.1 Each container shall be legibly marked with the following information:

- a) *Manufacturer's name, or trade-mark, if any;*
- b) *Date of manufacture, and*
- c) *Percentage of dry active ingredients*

5.1.1 The container may also be marked with Standard mark.

5.1.2 The use of the Standard Mark is governed by the provisions of the Bureau of Indian Standards Act, 1986 and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

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